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10/825,551	04/14/2004	Yoichi Nakano	S003-5266	8844

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EXAMINER

SUTHAR, RISHI S

ART UNIT PAPER NUMBER

2851

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/825,551	Applicant(s) NAKANO ET AL.	
	Examiner Rishi Suthar	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 11, 13, and 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 19 recite the limitation that the prescribed number of voltage or current pulses comprises one voltage or current pulse. This claim is indefinite because it does not further limit the claimed invention.

Claims 11, 13, and 17-21 recite the limitation that one or more sectors comprise a plurality of sectors. This is indefinite because one sector cannot comprise a plurality of sectors. Also, it is unclear exactly how the plurality of sectors can each have a sector arm connected thereto, which then drive the sectors to open and close the aperture.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6-9, 12, 14, 15, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi (U.S. Patent No. 6,536,962).

Regarding claim 1, Takahashi teaches in Fig. 3 a sector drive unit for a camera comprising a base plate (1) with an aperture (1a); sectors (31-35) for opening and closing the aperture; an electromagnetic actuator (16); and a driving force transmitting mechanism in Fig. 4 for transmitting a driving force of the actuator to the sectors and converting a prescribed amount of angular movement of the actuator into a sufficient amount of movement to drive the sectors to open and close the aperture.

Regarding claim 6, Takahashi teaches the driving force transmitting mechanism comprises a drive gear (17) provided on a drive shaft of the actuator (Col. 6, lines 32-34), and a sector drive gear (18) driven by the driving gear for driving the sectors.

Regarding claim 7, Takahashi teaches a sector urging spring provided on the driving force transmitting mechanism for urging the sectors in one of the aperture-opening direction and the aperture-closing direction (Col. 5, lines 52-54).

Regarding claim 8, Takahashi teaches a case (11) removably mounted to the base plate (screws 12, 13) and containing therein the electromagnetic actuator and the driving force transmitting mechanism.

Regarding claim 9, Takahashi teaches a sector position detecting unit for detecting when the sectors are in at least one of the aperture opening position or aperture closing position (Col. 9, lines 26-29).

Regarding claim 12, Takahashi teaches in Fig. 3 a sector drive unit for a camera comprising a sector unit having a base plate (1) provided with an aperture (1a), one or

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more sectors (31-35) movably mounted adjacent to the aperture for opening and closing the aperture, and a sector arm (29) for driving the one or more sectors to open and close the aperture; an electromagnetic actuator (16) and a driving force transmitting mechanism in Fig. 4 for converting a rotary driving force of the actuator into movement of the sector arm.

Regarding claim 14, Takahashi teaches a case (11) removably mounted to the base plate (screws 12, 13) for housing the electromagnetic actuator and the driving force transmitting mechanism.

Regarding claim 15, Takahashi teaches a sector position detecting unit for detecting a position of the sectors.

Regarding claim 22, Takahashi teaches the driving force transmitting mechanism comprises a drive gear (17) provided on a drive shaft of the actuator (Col. 6, lines 32-34), and a sector drive gear (18) driven by the driving gear for driving the sectors.

Regarding claim 23, Takahashi teaches a sector urging spring provided on the driving force transmitting mechanism for urging the sectors in one of the aperture-opening direction and the aperture-closing direction (Col. 5, lines 52-54).

5. Claims 11, 13 and 17 as understood are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi (U.S. Patent No. 6,536,962).

Regarding claims 11 and 13, Takahashi teaches the invention as claimed above, as well as a plurality of sectors each having a sector arm (29, 30) connected thereto, and the sector arms are driven by the actuator to open and close the aperture.

Regarding claim 17, Takahashi teaches in Fig. 4 the driving force transmitting mechanism converts a prescribed amount of angular movement of the actuator (16) into an amount of angular movement sufficient to drive the sectors from an aperture open position to an aperture closing position and vice versa.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 4, and 5 are rejected, and 18, 20 and 21 as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (U.S. Patent No. 6,536,962) and Seo et al. (U.S. Patent No. 5,555,059) in view of Itoh et al. (U.S. Patent No. 4,306,164).

Takahashi teaches the invention as claimed above, as well as a stepping motor which can be used as a shutter drive source in the invention (Col. 6, lines 34-35).

Takahashi does not disclose a pulse motor in his invention. Seo et al. discloses a pulse motor that undergoes the prescribed amount of angular movement in response to pulses for opening and closing an aperture in a camera depending on the polarity of the pulses (Col. 4, lines 51-54). Seo et al. also discloses in Fig. 6 a rotor (12) having a plurality of magnetic poles, a stator (50, 52) having a plurality of magnetic poles, and a drive coil for driving the rotor, and an angle of rotation of the rotor in response to one

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current pulse to the drive coil being defined by a relationship between the positions of the magnetic poles of the rotor and the stator. It is an inherent feature of the pulse motor that positions of the magnetic poles provided on the stator are static stable positions at which the rotor is retained without the supply of power to the drive coil, also known to as the residual or detent torque. Itoh et al. teaches that a pulse motor and a stepping motor can be used interchangeably (Col. 2, lines 22-24). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the invention of Takahashi to use a pulse motor as taught by Seo et al. in view of the teachings of Itoh et al. since a pulse motor and stepping motor can be used interchangeably.

8. Claims 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (U.S. Patent No. 6,536,962) in view of Tanikawa et al (U.S. Patent No. 6,485,200).

Takahashi teaches the invention as claimed above, except where the sector position detecting unit comprises a spring element. Tanikawa et al. discloses in Fig. 1 focal plane shutter which has a sector position detecting unit (15) which comprise a conductive spring element having a portion that undergoes movement with the drive force transmitting mechanism to come into and out of contact with a conductive member (Col 4, lines 55-59). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the shutter focal plane shutter of Takahashi to use the switch of Tanikawa et al. to detect a position of the sectors since the switches disclosed by Takahashi and Tanikawa et al. both perform the same function.

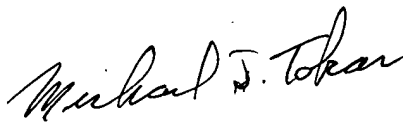
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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kobayashi (U.S. Patent No. 5,117,137) discloses a shutter assembly for a camera that uses a stepping motor as a drive source.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RS


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